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GONORRHŒAL VULVO-VAGINITIS IN CHILDREN

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THE study of venereal diseases has, undoubtedly, advanced by leaps and bounds during the last decade. During the early years of this century syphilis and gonorrhœa, together with the appalling social conditions which help and spread these diseases, were carefully ignored by the great majority of people, but with the war came a complete change in the point of view, and it is now generally recognised that the prevention and cure of syphilis and gonorrhœa are just as important to the community as are the prevention and cure of tuberculosis or even of cancer.

This being the case, it is rather surprising that vulvo-vaginitis in little girls has not received more attention. The question of assault has, of course, given rise to much discussion, and recent reports show that it is not uncommon, but statistics show that it plays a comparatively small part in the spread of gonorrhœa in these young children.

Congenital syphilis has been very carefully studied, and the fact that the children of syphilitic parents may be born with the disease is clearly understood. It has not been proved that gonorrhœa can be acquired *in utero*, but some authorities believe it to be possible. It is certain that ophthalmia neonatorum is acquired as the baby's head passes through the maternal passage, and a large proportion of the cases of vulvo-vaginitis are infected by one or other of their parents, usually the mother, who suffers from an infective discharge.

A. Reith Fraser, in the October, 1925, and January, 1926, numbers of the *British Journal of Venereal Diseases*, published a very interesting article on Vulvo-Vaginitis in Children, with a summary of sixty-three cases occurring

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in South Africa. In this paper he has collected no less than 114 references to the disease from most varied sources, but it is noticeable that among all these there are notes of only two series of cases observed in the British Isles, a series from Glasgow, reported by Watson in 1914, and a series from London, reported by Kidd and Simpson in 1924.

In 1919 Dr. Mary Macnicol was appointed physician-in-charge of a ward in Bruntsfield Hospital, with subsidiary out-patient clinics, reserved for cases of venereal disease in women and children. Since then a number of cases of gonorrhœal vulvo-vaginitis have been treated by her, nearly all as in-patients, and it seemed to me that it would be interesting to try to trace as many of these cases as possible to find out what results were obtained, not only as regards the disease itself, but as regards the effect of prolonged treatment on the mentality of the children.

I have to thank Dr. Macnicol for her permission to use her cases and for access to all her records, also for much time spent in interviewing parents and children, and for the great interest she has taken in the whole investigation.

During five years seventy cases of gonorrhœal vulvo-vaginitis in children under twelve years of age have been treated, and of these we have been able to trace fifty-one. Of the seventy cases, three were proved to have resulted from criminal assault, in thirty-three cases the mother had a vaginal discharge, in two cases the father was said to have a discharge, while in the remaining thirty-five cases no definite source of infection could be traced.

The source of infection is a most important question ; there is still a tendency to regard the children vaguely as the victims of vice in others. The idea appears to be that the sins of the fathers are visited on the children, and the community has no special duty in the matter. This attitude is, of course, entirely wrong ; the gonococcus is an infective pathogenic organism, and should be fought as are other pathogenic organisms.

The first essential in this contest is that every case of gonorrhœa should be investigated from the point of view of the probable source of infection. It cannot be too strongly insisted on that when a married person or a young child is infected, every member of the family should be examined. This ideal is difficult to attain, but should always be aimed at ; it will not be attained by frightening

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or blaming those infected, but the exercise of a little tact may be rewarded by the prevention of much suffering.

It is interesting to note that in our series all the children were of the usual hospital class, and Dr. Macnicol tells me that although one or two were sent to her in her private practice, they also belonged to this class; not one of the cases she has seen was the child of well-to-do parents. This has not been Reith Fraser's experience, but it is evident that in South Africa the employment of coloured servants introduces a new factor.

Although the parents of all these children belong to the working classes, the conditions in which they live vary greatly. Eight cases occurred in only children, some of them particularly well cared for, and, estimating roughly, about half were members of respectable working-class families; the other half were regular slum dwellers. Five at least were illegitimate, probably more.

It is perhaps superfluous to mention here the effects of bad housing conditions on the spread of infection, but overcrowding and dirt prepare the way for the gonococcus, just as they do for other organisms. Reith Fraser believes that lavatory seats are responsible for carrying the infection in many cases, and this suggests the possibilities for infection of the old system of common lavatories for several houses still in use in many parts of old Edinburgh. Any one who has visited in these houses knows that clean and respectable people have to share with families who appear completely indifferent to cleanliness or decency. It is small wonder, then, if little girls who have considerable difficulty with high lavatory seats, are exposed to infection in this way.

The home surroundings of the children are also of importance as regards prognosis. Those who return to good homes and are carefully looked after seldom have any further trouble, but those who are exposed to dirt and neglect are sometimes brought back with redness and irritation of the parts, and frequency of micturition. In such cases there is usually little discharge and no gonococci are found, and we believe that the condition is due to the parts being specially susceptible to irritation by dirt after the prolonged treatment.

The age incidence of gonorrhoeal vulvo-vaginitis in children is also interesting. The large proportion of children under five years of age is very striking. It has

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been suggested that this is due to the reaction of the vaginal secretion which alters as the child grows older, and the early age incidence of pneumococcal peritonitis in little girls has been cited as a possible parallel.

We believe that the explanation is more simple, and that the reason is that the younger the child is the more frequently has it to be handled, and in this way the younger children are more exposed to infection than the older children.

This is borne out by our figures. Thirty-four out of seventy were under four years of age—that is, 48·5 per cent. Twenty-seven of the thirty-three children whose mothers suffered from an infective vaginal discharge were also under four years of age—that is, 81·8 per cent.

Turning to the clinical side, gonorrhœal vulvo-vaginitis is not a difficult condition to diagnose. Occasionally a child is brought with a definite history of assault. We had three such cases, Reith Fraser one in forty, Kidd and Simpson two in fifty. More usually the mother tells us that the child's drawers were stained or that the parts looked red, and on investigating she saw "a discharge in the front passage."

Sometimes attention has been drawn to the condition by frequency of micturition and dysuria, but it is curious how seldom this is complained of, even in very acute cases. Possibly this is due to lack of training; many of these children, even at the age of four or five, frequently wet themselves when perfectly well.

A careful history should always be taken before the child is examined, the present health of all the members of the family and the social conditions being inquired into.

The mother should then be sent out of the room, and the patient put on the examining table in the lithotomy position. This is much resented on the first occasion, but children soon get used to it and lie quietly. The parts are wiped clean and swabs are taken from the urethra, the inside of the vulva and the cervix, the last being obtained by passing a small speculum.

The question of admission to hospital must now be discussed. If, on examination of the films, the gonococcus is found, there can be no question that the child ought to be kept in, but even if the gonococcus is not found admission is the wiser course if the case presents the definite clinical features of vulvo-vaginitis.

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These children practically always do well in hospital. They get used to the treatment, and the fact that there is a routine, the same as for other children in the ward, and which is completely different from their usual life, seems to prevent their thinking too much about their condition.

When the children were brought back to report after two or three years we were often told that even those who had been five or six years old when in the ward had completely forgotten that they had ever been in hospital.

Complete rest in bed is of great importance during the acute stage, and good hygienic surroundings, absolute cleanliness, and plenty of fresh air take part in the treatment throughout. Children of the class with which we are dealing obtain these most readily in hospital.

If there are other children in the family the infected child is a danger to them ; in our series we had six cases where infection passed from one sister to another, and one where three girls in one family were affected. This is an important reason why infected children should be segregated.

If admission cannot be arranged, the mother should be warned of the danger and instructed to provide sponges, towels, etc., for the patient, which must on no account be used by other members of the family.

The treatment adopted at Bruntsfield Hospital is considerably less drastic than that recommended by many authorities. Really painful treatment obviously cannot be regularly carried out ; these children are often very young and far from robust, and we do not think that the regular administration of anæsthetics is justified. This does not mean, however, that we hesitate to give an anæsthetic if there is great tenderness of the parts, and the child is very nervous. One very thorough treatment may so reduce the inflammation that the next treatment is much less painful. We also give an anæsthetic if any unusual feature in the case calls for investigation.

For example, one case proved to have a large wooden bead actually stuck on the cervix in such a way that it was taken to be the cervix enlarged and indurated by disease, while two were cases of persistent Wolffian ducts which had become infected. Both these cases were referred to Miss Herzfeld, one by her own doctor, and one by us, after having been treated for years as recurrent

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vulvo-vaginitis. We understand that Miss Herzfeld intends to report the cases, which are of great interest.

Dr. Macnicol has got over the difficulty of treating the interior of the vagina by using very small glass specula, which are specially made for her. These specula cause practically no pain when inserted into the vagina, and through them treatment is carried out with dressed probes.

Several different methods have been tried, but the following is the routine we now follow in ordinary cases without complications. The parts are wiped clean with dry swabs and the small glass speculum inserted. A dressed probe is passed in, and, if required, swabs are taken from the interior of the vagina and the cervix.

The interior of the vagina and the cervix are gently swabbed clean and then a dressed probe dipped in 10 per cent. protargol is passed up to the cervix, and the speculum is withdrawn, followed by the protargol probe, which is rubbed round the vaginal walls and the hymen as it is withdrawn. The urethra and the interior of the vulva are also treated with the same solution. This protargol swabbing is done twice weekly, and on each intervening day the child is douched with weak Condyl's fluid (1 in 16,000) and is given a hot boracic sitz bath. Under this treatment the acute stage is usually passed in a week to a fortnight; then, instead of swabbing with protargol, a small aciclavine pessary is pushed through the speculum and left in the vagina. This also is done twice a week and the douching and sitz baths continued on the intervening days. After three or four pessaries have been inserted the swabs are usually negative, and we go back to the protargol swabbing. The treatment is now gradually reduced, and lactic acid is substituted for Condyl's fluid in the douche.

The opalescent discharge described by Reith Fraser has only appeared in one or two of our cases, and we have not found it necessary to modify our treatment because of this.

At this stage the child may be sent home while attending for treatment twice a week. Theoretically the sitz baths should be the last item of treatment to be stopped, and could conveniently be carried out at home, but in practice we find that it sometimes causes irritation of the skin of the buttocks, and has to be stopped for this reason.

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In severe cases with much pain and tenderness ichthyol and glycerine may be poured into the vagina through the speculum, and the child's legs elevated ; but this is not often necessary. We used to treat many of these cases with oil of eucalyptus, but have given up this method.

If the discharge is very tenacious, the dressed probe should be dipped in glycerine of borax before swabbing out the vagina.

The urethra is in every case treated with the vulva, but urethral smears very seldom showed gonococci—another point in which the vulvo-vaginitis of childhood differs from the adult infection. Reith Fraser emphasises the importance of proctitis and often finds the diplococcus in rectal smears ; we have to admit that we only investigated our later cases from this point of view, but we never obtained a positive swab.

Together with the local treatment, we employ vaccine therapy in most cases. For children the detoxicated vaccine is most suitable and is very well tolerated. For children from two to five years old, we begin with a dose of 2 minims (200 million gonococci) of the detoxicated vaccine given twice a week, and increase by 2 minims each week until 1,200 to 1,600 million per dose, according to the age of the child, is reached. The dose is then gradually decreased to 200 million per dose, which finishes the course. If necessary, several courses of vaccines can be given.

As a rule, the children tolerate the injection very well, and even babies under a year may stand a full course up to 1,200 million, if the increase is made gradually. We have never seen a serious general reaction, but we have occasionally met with a local reaction so severe that we have considered it wiser to stop the vaccine therapy.

The length of time occupied by the treatment is very variable, but in all cases the greatest patience is required. If the gonococcus is actually present, the average length of stay in hospital is two months, and one child was actually an in-patient for eleven months, including six weeks in the city hospital with scarlet fever.

After leaving hospital the children attend as out-patients, usually twice a week, but every day if necessary. As they improve their visits are decreased to once a week, then to once a fortnight, and finally to once a month.

If swabs show no organisms or pus cells present for

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three consecutive months, they are discharged, provided that they have no symptoms.

We do not use any provocative treatment to test for cure in these young children.

While our aim has been to keep the children under observation for at least a year, it must be admitted that in a number of the cases reported upon the mother had ceased bringing the children as soon as they were free of symptoms. In spite of this, we were glad to find how many proved to be cured.

Complications due to the gonococcus were not common. We had one definite case of cystitis and one of pyelitis, but the latter followed the course of an ordinary *B. coli* infection. We had one case of arthritis which resembled the gonococcal arthritis of adults. Skin lesions about the buttocks and thighs are very common, due to irritation. They may be very troublesome, and are certain to occur unless the towels and napkins worn by the children are very soft and kept scrupulously clean.

Infectious disease frequently interrupted treatment; scarlet fever and measles were both seen, the former being the more common in this series of cases.

A certain number of the children, nearly all of whom were under two years of age, suffered from congenital syphilis.

The prognosis is good if the case is adequately treated. Of the fifty cases we have been able to trace, thirty had no symptoms of any kind and had remained well for periods of from one to four years. Two had died from infectious diseases. Seventeen still had slight symptoms, such as frequency of micturition or enuresis, or occasional slight redness of the parts. Only one had actual discharge, a relapse having brought her back to hospital while the investigation was being carried out. As already stated, the social conditions seem to have an important bearing on prognosis; dirt and neglect causing a chronic non-specific vaginitis. The infectious diseases are sometimes responsible for a relapse, and in two such cases gonococci were again found in the smears.

Only two of the girls had reached the menarche; they both menstruated regularly and practically painlessly, and appeared normal in all respects. This is what one would expect from the pathology of the condition in young children where the infection is found in the delicate mucous membrane of the inner surface of the labia and

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vagina, and does not erode the cervix or penetrate to the interior of the uterus.

The important points may be summarised thus:—

- (1) Gonorrhœal vulvo-vaginitis is an acute infectious disease.
- (2) Children suffering from it should be admitted to hospital for their own sake and that of others.
- (3) Treatment is easy, but must be persevered with for long periods.
- (4) Prognosis is good.
- (5) There is no indication that the children, after being cured of the disease, are adversely affected either physically or mentally.

In conclusion, I must again thank Dr. Macnicol and also Miss Anne Ashley, of the Edinburgh Council of Social Service, and her assistants, without whose help we should have been unable to trace many of these cases.

TABLE SHOWING AGE PERIODS AND RESULTS OF TREATMENT.

Age Period.	Cured.	Still have Discharge.	Still have Other Symptoms.	Died from Other Causes.	Not Traced.	Total.
Under 1 year	2	0	0	0	2	4
1-2 years .	3	0	0	1	0	4
2-3 „ .	5	0	5	1	1	12
3-4 „ .	8	0	4	0	2	14
4-5 „ .	1	0	4	0	0	5
5-6 „ .	2	0	0	0	6	8
6-7 „ .	3	1	2	0	4	10
7-8 „ .	2	0	2	0	0	4
8-9 „ .	0	0	1	0	1	2
9-10 „ .	1	0	0	0	3	4
Over 10 years	3	0	0	0	0	3
TOTAL .	30	1	18	2	19	70